Senate Bill 76
Establishment of Demonstration Hydrogen Fueling Stations

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Workshop Series 2005
Sacramento – October 28
Fresno – November 1
Los Angeles – November 2 & 3

Station Presentation Overview

- SB-76 Process
- Workshop/Station Purpose
- Funding and Administration
- Environmental Criteria
- Station Access Concepts
- Station Location Concepts
- Station Siting Concepts
- Station Public Outreach
- Codes and standards
- Conclusion

CALIFORNIA HYDROGEN HIGHWAY NETWORK

SB - 76 Public Process

- Public bid process for stations and vehicles
- Input from Cal/EPA Environmental Justice Committee meeting on location/siting criteria
- Solicit input in three Public workshops
- Consistent with ARB's Land Use Planning Handbook
- 30 Day comment period for bid criteria
- Report due to legislature December 2006

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SB 76 Workshop Purpose

- Accept public testimony and input:
  - Hydrogen production & fueling
  - Siting Criteria
  - Location Criteria

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SB 76 Purpose
Fueling Stations

- Co-fund up to three demonstration hydrogen fueling stations in California
  - Each station shall meet or exceed environmental goals of California Hydrogen Blue Print Plan
  - Shall use new renewable energy or combine fuel dispensing with electricity and heat generation
  - Station location to provide convenient network for fueling
  - Encourage innovative design elements
  - Accessible to public during convenient hours

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Station Funding and Administration

- Total station funds allocated $3,750,000
- Cost sharing
- Funds encumbered January 1, 2006
- Contracts must be executed by Dec 31, 2006
- Our goal - contracts in place by July 2006

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Environmental Criteria

33% Hydrogen New Renewable Energy

SB 1038 and SB 1078 CEC RPS Guidebook

- Biomass
- Solar Thermal Electric
- Photovoltaic
- Wind
- Geothermal
- Fuel Cells
- <30 MW hydroelectric
- Digester Gas
- Municipal Solid Waste
- Landfill gas
- Ocean wave
- Ocean Thermal
- Tidal current

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Environmental Criteria
Energy Station/H2 Fueling

- Operated on NG or Renewable gas
- Products generated
  - Electricity to run station
  - Hydrogen for refueling
  - Thermal energy
- High temperature fuel cell, micro turbine/HICE generator, electrolysis,

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Station Access Concepts

- Public access
  - Receive approved training fueling procedures, PIN assigned, signed liability agreements
  - Vehicle has been certified to appropriate codes and standards
- Easily accessible
  - Highway access-near main roads and thoroughfares
  - Clearly marked with visible CA H2 HWY signage
  - Card key access / Fleet card or Visa/MasterCard card billing
- Convenient hours of operation
  - Open from 6:00 a.m. to 6:00 p.m. w/attendant
  - Available at 20 minutes notice from 6:00 p.m. – 6:00 a.m.

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Location Concepts
Geographic Location

- Encourage station locations that provide a convenient network for fueling.
  - Maximize use by new or existing fleet
  - Enhance operation of established clusters
  - Existing fleets and stations in greater Los Angeles, Sacramento, San Diego, San Francisco Bay Area
  - New cluster or bridging station in Central Valley

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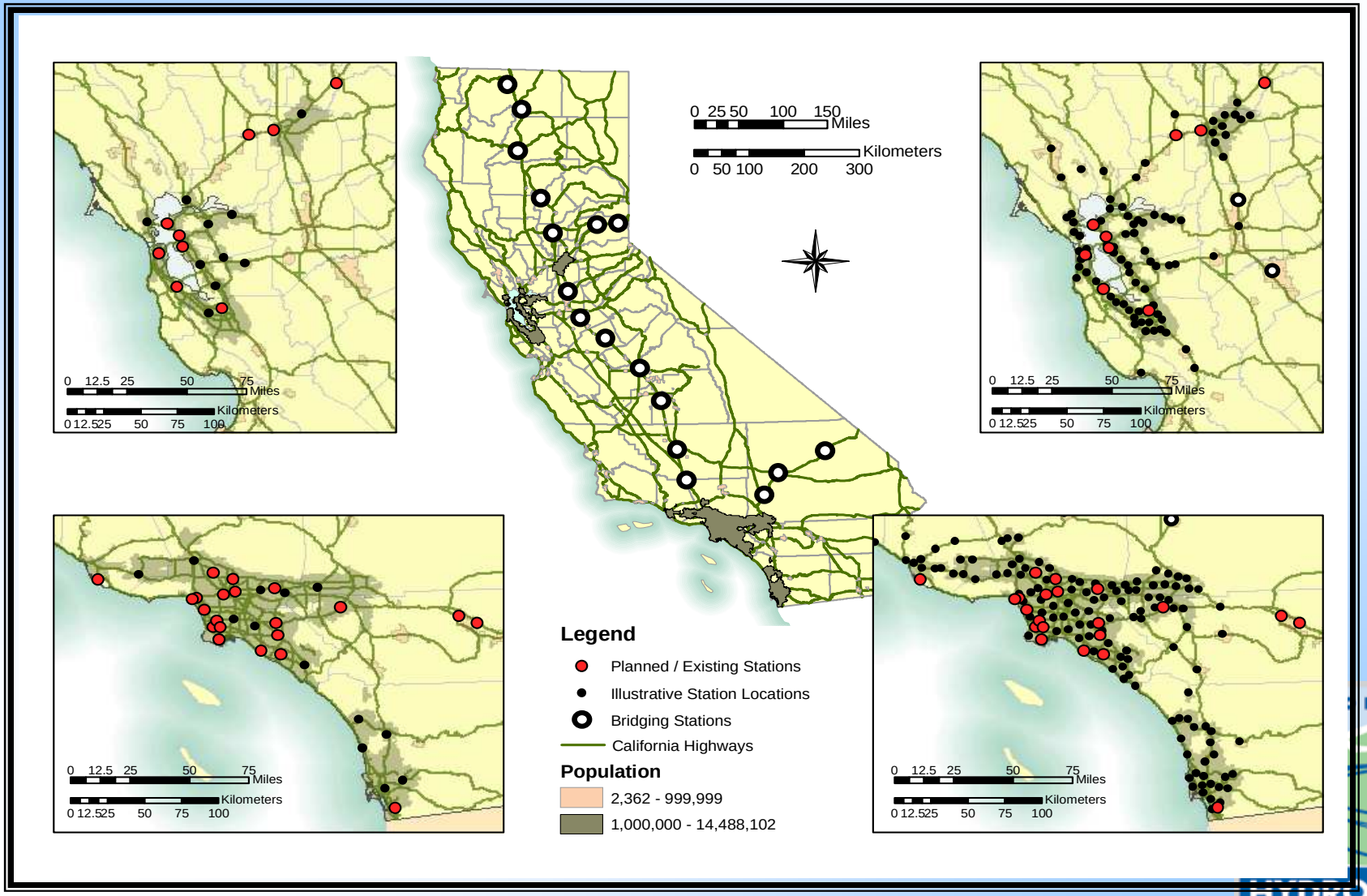
Station/Cluster Locations



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Station Siting Criteria

- Develop siting criteria consistent with Air Quality and Land Use Handbook
  - Hydrogen fuel contains no toxic compounds
  - Inform planning, zoning and permitting authorities
  - Siting station in near sensitive receptors
    - Schools, daycare centers, hospitals...
- On site data collection
  - Throughput, fillings, fuel quality, fill rate, production rate, events/alarms, maintenance

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Station Siting Concepts (continued)

- Storage capacity – fleet needs
  - Minimum 20 kg potential for expansion
- Hydrogen production capacity
  - 10 kg per day w/potential for expansion
- Certified to fill 5,000 psi SAE J2719 hydrogen
  - Expandable to 10,000 psi
- Storage medium
  - Compressed, liquid, metal hydride, composite tank construction, other
- Hydrogen grades and cost to the consumer
  - Both ICE and FC grade?
  - What formula to use?
  - 2 X Premium gas grade?
  - Competitive with other gaseous motor vehicle fuels

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Station Siting

Potential Site/Partners

- State facilities
  - CalTrans
  - Universities
  - Garage
- Fleet locations
  - City/municipal sites
  - Transit Properties
- Existing fueling sites
  - Retail gas
  - Natural Gas
- Auto dealerships
- AQMD/APCD property
- Airports
- Refuse fleet facility
- Utilities
- Refinery/pipeline location
- Port Authority location

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Station Public Outreach Concept

- Must have early community involvement plan
  - Require public notice/outreach prior to groundbreaking
    - Inform community, major stakeholders, fire marshal, permitting department
- Must have public education element at station
  - Static or interactive educational media
  - CA Hydrogen Highway, Why Hydrogen?, Typical station components
  - Phone number to call regarding hydrogen station
- Innovative station design canopy, dispenser, graphics, logos, www, etc

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Anticipated RFP Timeline

October	Collect input/public testimony at workshops Hold CEJAC briefings
November	Conduct Central and Southern California Workshops Hold Environmental Justice meeting Incorporate information from workshops Draft siting criteria and Request for Proposals
December	Release RFP Package
January-February	Hold bidders conference if necessary Applicants prepare bid packages
March	Bids due to ARB Begin evaluation of bid packages
April - June	Score bids, Notify successful bidders Develop contracts
July	Contracts signed, work begins

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Station Siting/Implementation

Codes and Standards
Authorities with Legal Jurisdiction

- National Codes and Standards - ASTM, NFPA, SAE
- California Codes and Standards – ARB, CEC, Food & Ag
- Local Codes and Standards – Planning, Building dept, Fire Marshal
- California Laws and Regulations relating to hydrogen
  - Complete list -Implementation Topic Team Report January 5, 2005 Section 1

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Environmental Justice Activities

- Siting to include buffer zones with sensitive receptors (schools, hospitals residences, etc.)
- Mitigate adverse impacts to affected neighborhoods
- ARB to solicit input from the Cal/EPA Environmental Justice Advisory Committee
- Siting consistent with ARB's Air Quality and Land Use Handbook
- Partners will meet with local community groups and provide opportunities for community input
- ARB will investigate opportunities for placement in Communities w/EJ concerns

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Conclusion

Solicit Public Testimony and Input

- What clusters would benefit and how?
- What new renewables are feasible?
- How will the environmental goals be met?
- What hydrogen generation technologies should be demonstrated?
- Where would an energy station be beneficial and why?
- What fuels should be dispensed and at what price?
- What should the station look like?
- How should the community be involved?
- Shared liability – what is equitable?

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